



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/066,516	01/30/2002	Herbert F. Cattell	10010010-1	3692

7590 09/18/2008  
AGILENT TECHNOLOGIES, INC.  
Legal Department, DL429  
Intellectual Property Administration  
P.O. Box 7599  
Loveland, CO 80537-0599

EXAMINER
----------

NEGIN, RUSSELL SCOTT

ART UNIT	PAPER NUMBER
----------	--------------

1631

MAIL DATE	DELIVERY MODE
-----------	---------------

09/18/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/066,516	<b>Applicant(s)</b> CATTELL, HERBERT F.	
	<b>Examiner</b> RUSSELL S. NEGIN	<b>Art Unit</b> 1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11, 22-28 and 36-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11, 22-28 and 36-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Comments***

Applicants' amendments and request for reconsideration in the communication filed on 2 June 2008 is acknowledged.

Claims 1-11, 22-28 and 36-38 are pending and examined in the current Office action.

### ***Withdrawn Rejections***

The rejection of claim 28 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention is withdrawn in view of amendments filed to the instant claim on 2 June 2008.

The rejection of claim 38 under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter is withdrawn in view of amendments filed to the instant claim on 2 June 2008.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following rejection is reiterated from the previous Office action:

Claims 1, 3-4 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Cattell et al. [International Genome Sequencing and Analysis Conference, volume 12, page 106, 2000] as evidenced by the definition of “pipeline” [obtained online from Webster’s Computer Dictionary (2003) at [www.credoreference.com](http://www.credoreference.com) on 2 March 2008].

Claim 1 is drawn to a method for simultaneous acquisition and analysis of separate microarray sets of data comprising three steps. The first step is reading a first chemical array. The second step is saving the array signal data. The third step is retrieving the saved signal data from the memory, wherein the feature characteristics are extracted from the signal data while a second chemical array is being read at said array reading station.

The abstract of Cattell et al. states:

The analysis of microarrays has historically been an interactive task requiring the use to manually scan and feature extract each array individually. Typical points of user interaction include defining the scan area, aligning a grid to enable the feature finding process, flagging anomalous features and/or regions within the array, and the management of various files including design or layout files, scan files and results files. We designed an automated feature extraction system around our low detection limit, dual fluorescent scanner with autoloading capacity. This approach allows the user to load a carousel with arrays and ‘walkaway’ from the system, which is left to scan and feature extract unattended in a pipelined fashion. The user returns later to find all arrays scanned, extracted and processed, and ready for further analysis. Through the use of fiducials and barcodes, which together define the scan area and locate the array of the scanned image, our system simplifies image processing and eliminates file management issues. Automated methods in the feature extractor replace the remaining interactive steps such as feature finding and flagging of outlier features. The processed results include normalized signals, gene expression ratios, and associated errors and p-values that can be used in downstream analysis.

The method of Cattell et al. discloses reading and extracting data from multiple arrays in a pipelined fashion in an automated system. Cattell et al. suggest use of bar codes as array identifiers.

While Cattell et al. do not explicitly recite the simultaneity of the reading and extracting data, they do mention the reading and extracting is accomplished in a “pipelined” fashion. It is inherent that the term “pipeline” signifies this simultaneity in execution of the reading and extraction of data in the microarrays based on the following definition for “pipeline.”

As is stated in the definition of “pipeline” [obtained online from Merriam Webster (at credreference.com) on 2 March 2008]:

“In computer processor design, an „assembly line“ in the processor that dramatically speeds the processing of instructions through retrieval, execution, and writing data back to the memory. Within the pipeline, each step constitutes a functional unit that is optimally designed to perform one task, such as fetching instructions, decoding instructions, fetching arguments, performing arithmetic operations, or storing results. **Because each of the pipeline’s functional units can work simultaneously, a processor can, in effect, process more than one instruction at a time.** A microprocessor with two or more pipelines is said to employ superscalar architecture. Pipelines are one of several design characteristics of the reduced instruction set computer (RISC) architecture.”

(Emphasis added by the examiner.)

Consequently, it is inherent that pipelining means the simultaneous execution of tasks.

Claim 3 is further limiting with the additional limitation of retrieving the saved signal data from the memory as the processor becomes available to perform feature extraction on the retrieved signal data for the chemical array, and extracts feature characteristics from the retrieved signal data.

Claim 4 is further limiting with the extra limitation wherein multiple arrays are read is read and features are extracted therefrom.

The limitation is taught by the abstract of Cattell et al., which extracts features from arrays (plural) in a pipelined fashion.

Claim 11 is dependent from claim 1 with the extra limitation of saving a processor identification or feature extraction characteristic in a memory. The abstract of Cattell et al. describes the use of fiducials and barcodes for processor identification.

Response to Arguments:

Applicant's arguments filed 2 June 2008 have been fully considered but they are not persuasive.

Applicant has several arguments with regards to this anticipatory prior art rejection. This first argument is on page 7 of the Remarks wherein applicant alleges that the definition used for the term "pipeline" is not publicly available because the term is within the password protected "credoreference" database. This is not persuasive because the definition from the "credoreference" database was obtained originally from Webster's New World Computer Dictionary, 10<sup>th</sup> ed. (copyright May 2003- see previous 892 form) which is available for sale (ISBN: 978-0-7645-2478-3). Consequently, if a book is available for sale, it is available to the public.

Applicant next contends that the definition of "pipelined" used is "extrinsic evidence" and cites section 2131.01 of the MPEP to argue that post art can not be used for extrinsic evidence. Applicant argues that even assuming that this definition is inherent and not extrinsic evidence, the definition from credoreference does NOT suffice as a reference for inherency because it shows a sufficient rather than a necessary definition of the term "pipeline." Applicant then takes the step of attempting to assert their definition of the term "pipeline" from a prior art dictionary.

In order to address these arguments, inherency (in section 2112 of the MPEP) is assessed in detail. Specifically, there are FOUR principles for why the definition of pipelined employed is an accurate reference supporting inherency in the prior 35 U.S.C. 102 rejection.

First, "Inherent feature need not be recognized at the time of the invention." It is noted that the MPEP supports the use of post-filed art to support inherent properties; there is no time limit for this post-filed art (i.e. the inherency reference can be filed any time including up until the present).

Second, an inherency rejection under 35 U.S.C. 102/103 "can be made when the prior art product seems to be identical except that the prior art is silent as to an inherent characteristic." Both applicants and the examiner agrees that the prior art of Cattell et al. is silent on the meaning of the verb "pipelined."

Third, "[the] examiner must provide rationale or evidence tending to show inherency." The definition of "pipelined" from a publicly available dictionary provides a "reasonable and customary" meaning of the verb "pipelined" applicable to the instantly rejected claims. Since Cattell et al. teaches an automated method, a dictionary of terms related to automated/computerized processes such as Webster's is a place that one skilled in the art would reasonably look to define the term. A definition is inherent to a term.

Fourth, applicant attempts to provide evidence showing his own preferred definition on page 10 of the Remarks by defining the NOUN (not verb) pipeline as:

1. A conduit of pipe, especially one used for the conveyance of water, gas, or petroleum products.
2. A direct channel by which information is privately transmitted.

In response, the first definition is not related to the instant application as the instant claims are not related to pipes, water, petroleum, or gas. The second definition is also not relevant to the method taught by Cattell et al. as Cattell et al. does not teach transmission of his data, but teaches that his scanning AND data extraction are performed in a pipelined fashion. Consequently, the examiner asserts that the definition provided by Webster pertaining to automated processes is more applicable than the one provided by applicants, and maintains that Cattell et al. anticipates the instant claims.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The following rejection is reiterated from the previous Office action:

#### 35 U.S.C. 103 Rejection #1:

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cattell et al. as evidenced by the definition of "pipeline" [obtained online from Webster's Computer Dictionary (2003) at [www.credoreference.com](http://www.credoreference.com) on 2 March 2008] as applied to claims 1, 3-4, and 11 above, and further in view of Li et al. [US Patent 6,571,005].



Claim 2 is further limiting with the extra limitation of containing polypeptide or polynucleotide arrays.

Cattell et al. teaches a method comprising the simultaneous reading and extraction of data of arrays, as discussed above.

Cattell et al. does not teach use of polypeptide or polynucleotide arrays.

As the title of the patent of Li et al., states, "Feature extraction and normalization algorithms for high-density oligonucleotide gene expression array data," the objective of this invention is to normalize and extract feature data from oligonucleotide microarrays.

The purpose of Li et al. states in column 1, lines 17-21:

Monitoring gene expression using high-density microarrays is a technique in the study of cell functions and the associated biochemical pathways, candidate gene identification, cellular response to drug compounds, and classification of disease states.

It would have been obvious to someone of ordinary skill in the art at the time of the instant invention to modify the array analysis methods of Cattell et al. by use of the polypeptide or polynucleotide arrays of Li et al. wherein the motivation would have been that Li et al. has the advantage of examining multiple arrays with oligonucleotides for the purpose of normalization and feature extraction in order to address disease [see column 1, lines 17-21 of Li et al.].

#### Response to Arguments:

Applicant's arguments filed 2 June 2008 have been fully considered but they are not persuasive. Applicant relies on alleged deficiencies of the abstract of Cattell et al. to argue against this rejection. Since the reference of Cattell et al. is not deficient for the

Art Unit: 1631

reasons discussed above, applicant's arguments are not persuasive and the rejection is maintained.

The following rejection is reiterated from the previous Office action:

35 U.S.C. 103 Rejection #2:

Claims 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cattell et al. as evidenced by the definition of "pipeline" [obtained online from Webster's Computer Dictionary (2003) at [www.credreference.com](http://www.credreference.com) on 2 March 2008] as applied to claims 1, 3-4, and 11 above, and further in view of Besemer et al. [US Patent 6,399,365; issued 4 June 2002; filed 17 July 2001].

Claim 5 is further limiting with the extra limitation of reading an array identifier in a memory.

Claim 6 is further limiting with the extra limitation of having the ability of retrieving the identifier from the memory.

Claim 7 is further limiting with the extra limitation of extracting feature characteristics of the first array by retrieving feature characteristics corresponding to the identifier.

Claim 8 is further limiting with the extra limitation of having the identifier on the substrate.

Claim 9 is further limiting with the extra limitation of having a sample processing station.

Art Unit: 1631

Cattell et al. teaches a method comprising the simultaneous reading and extraction of data of arrays, as discussed above.

Cattell et al. do not go into detail about array labeling and identification.

Besemer et al. describes putting bar codes on arrays for identification purposes. As stated in the last sentence of their abstract, "The housing also includes a bar code." The set of claims emphasizes computational analysis of these bar codes, as stated in column 23, lines 20-27:

A package for hybridization, comprising... a housing including a fluid cavity constructed and arranged for hybridization of a target to a probe of said probe array located inside a fluid cavity, said housing including a bar code and being arranged for use with a detection system.

Column 23, lines 55-61 state:

A package for supporting a probe array, comprising: an optically transparent chip comprising an array of different probes including biological polymers, immobilized on a surface of said chip; a housing constructed to receive said chip; and a bar code associated with said chip.

Consequently, Besemer et al. shows array identifiers on substrates in sample processing stations, the ability to receive the bar code from the chip, and the ability to receive array information from the bar codes.

It would have been obvious to someone of ordinary skill in the art at the time of the instant invention to modify the array reading and extraction method of Cattell et al., by use of Besemer et al. wherein the motivation would have been that while Cattell et al. states the necessary use of bar codes for identification, Besemer et al. goes into detail behind the use of bar codes for array identification and further advances the efficiency of microarray analysis [see column 23 of Besemer et al.].

Response to Arguments:

Applicant's arguments filed 2 June 2008 have been fully considered but they are not persuasive. Applicant relies on alleged deficiencies of the abstract of Cattell et al. to argue against this rejection. Since the reference of Cattell et al. is not deficient for the reasons discussed above, applicant's arguments are not persuasive and the rejection is maintained.

The following rejection is reiterated from the previous Office action:

35 U.S.C. 103 Rejection #3:

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cattell et al. as evidenced by the definition of "pipeline" [obtained online from Webster's Computer Dictionary (2003) at [www.credoreference.com](http://www.credoreference.com) on 2 March 2008] as applied to claims 1, 3-4, and 11 above, and further in view of Rava et al. [US Patent 5,874,219; issued 23 February 1999, filed 9 April 1996].

Claim 10 is further limiting with the extra limitation of multiple reading stations.

Cattell et al. teaches a method comprising the simultaneous reading and extraction of data of arrays, as discussed above.

Cattell et al. does not describe multiple reading stations.

The patent of Rava et al., entitled, "Methods for concurrently processing multiple biological chip assays," states as its abstract:

Methods for concurrently processing multiple biological chip assays by providing a biological chip plate comprising a plurality of test wells, each test well having a biological chip having a molecular probe array; introducing samples into the test wells; subjecting the biological chip plate to manipulation by a fluid handling device that automatically performs steps to carry out reactions between target molecules in the samples and probes; and subjecting the biological chip plate to a biological chip plate reader that interrogates the probe arrays to detect reactions between target molecules and probes.

Figure 1 illustrates such a plate with multiple readers. Column 2, lines 7-9 state, “In a further embodiment of the invention, the method also includes processing the results of the assay with a computer.”

It would have been obvious to someone of ordinary skill in the art at the time of the instant invention to modify the array reading and extracting method of Cattell et al. by use of the multiple reading stations of Rava et al. wherein the motivation would have been that Rava et al. has the advantage of examining multiple arrays for the purpose of more powerful, expedited analyses of microarrays by concurrent processing of the arrays [see title of Rava et al. and column 2 of Rava et al.].

Response to Arguments:

Applicant's arguments filed 2 June 2008 have been fully considered but they are not persuasive. Applicant relies on alleged deficiencies of the abstract of Cattell et al. to argue against this rejection. Since the reference of Cattell et al. is not deficient for the reasons discussed above, applicant's arguments are not persuasive and the rejection is maintained.

The following rejection is reiterated from the previous Office action:

35 U.S.C. 103 Rejection #4:

Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cattell et al. as evidenced by the definition of “pipeline” [obtained online from Webster's Computer Dictionary (2003) at [www.credoreference.com](http://www.credoreference.com) on 2 March 2008]

as applied to claims 1, 3-4, and 11 above, and further in view of Ambrose et al. [US Patent 6,309,886; issued 30 October 2001; filed 24 November 1999].

Claim 22 is drawn to an apparatus for multiple array reading using multiple processors comprising a memory, multiple processors, and the simultaneous retrieving and acquisition of data.

Claim 23 is further limiting with the extra limitation of a second processor automatically retrieving signal data for said first chemical array from the memory as the processor becomes available to perform feature characteristic extraction on the retrieved signal data for the chemical array, and extracts feature characteristics from the retrieved signal data.

Cattell et al. teaches a method comprising the simultaneous reading and extraction of data of arrays, as discussed above.

However, Cattell et al. does not describe use of multiple processors.

The patent of Ambrose et al., entitled, "High throughput analysis of samples in flowing liquid," teaches such parallel processing. As stated in column 5, lines 43-47, "The corrected burst size distribution (BSD) in FIG 4A was obtained with 20 consecutive images using the conditions described in FIG 2 with a data acquisition time of 8.6 seconds. The data analysis time was ~1 minute per image. With highly parallel computing, this data time can be further reduced." Ambrose et al. continues on column 6, lines 52-57, "Another application for this technique is to characterize artificial chromosome clone libraries. Such libraries are widely used in gene mapping, DNA

Art Unit: 1631

sequencing, and other types of genome analysis, and can consist of as many as hundreds of thousands of DNA clones in microtiter wells,..."

It would have been obvious to someone of ordinary skill in the art at the time of the instant invention to modify the array reading and extracting method of Cattell et al. by use of the multiple processors in Ambrose et al. wherein the motivation would have been that Ambrose et al. has the advantage of examining multiple processors for the purpose of more powerful, expedited analyses of microarrays [see column 5, lines 43-47 of Ambrose et al.].

Response to Arguments:

Applicant's arguments filed 2 June 2008 have been fully considered but they are not persuasive. Applicant relies on alleged deficiencies of the abstract of Cattell et al. to argue against this rejection. Since the reference of Cattell et al. is not deficient for the reasons discussed above, applicant's arguments are not persuasive and the rejection is maintained.

The following rejection is reiterated from the previous Office action:

35 U.S.C. 103 Rejection #5:

Claims 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cattell et al. as evidenced by the definition of "pipeline" [obtained online from Webster's Computer Dictionary (2003) at [www.credreference.com](http://www.credreference.com) on 2 March 2008] in view of

Art Unit: 1631

Ambrose et al. as applied to claims 1, 3-4, 11, and 22-23 above, and further in view of Besemer et al.

Claim 24 is further limiting with the extra limitation of having an array reader.

Claim 25 is further limiting with the extra limitation of having a second processor with an array identifier.

Claim 26 is further limiting with the extra limitation of having a third processor which communicates with a memory.

Claim 27 is further limiting wherein the identifier reader reads associated array identifiers from an array substrate or a housing containing the array.

Cattell et al. and Ambrose et al. make obvious a method comprising the simultaneous reading and extraction of data of arrays with multiple processors, as discussed above.

However, Cattell et al. and Ambrose et al. do not describe multiple array identifiers.

Besemer et al. describes putting bar codes on the arrays for identification purposes. As stated in the last sentence of their abstract, "The housing also includes a bar code." The set of claims emphasizes computational analysis of these bar codes, as stated in column 23, lines 20-27:

A package for hybridization, comprising... a housing including a fluid cavity constructed and arranged for hybridization of a target to a probe of said probe array located inside a fluid cavity, said housing including a bar code and being arranged for use with a detection system.

Column 23, lines 55-61 state:

A package for supporting a probe array, comprising: an optically transparent chip comprising an array of different probes including biological polymers, immobilized on a surface of said chip; a housing constructed to receive said chip; and a bar code associated with said chip.



Consequently, Besemer et al. shows array identifiers on substrates in sample processing stations, the ability to receive the bar code from the chip, and the ability to receive array information from the bar codes.

It would have been obvious to someone of ordinary skill in the art at the time of the instant invention to modify the array analysis methods of Cattell et al. as and Ambrose et al., in further view of the array identification method of Besemer et al. wherein the motivation would have been that Besemer et al. goes into detail behind the use of bar codes for array identification and further advances the efficiency of microarray analysis [see column 23 of Besemer et al].

Response to Arguments:

Applicant's arguments filed 2 June 2008 have been fully considered but they are not persuasive. Applicant relies on alleged deficiencies of the abstract of Cattell et al. to argue against this rejection. Since the reference of Cattell et al. is not deficient for the reasons discussed above, applicant's arguments are not persuasive and the rejection is maintained.

The following rejection is reiterated from the previous Office action:

35 U.S.C. 103 Rejection #6:

Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cattell et al. as evidenced by the definition of "pipeline" [obtained online from Webster's Computer Dictionary (2003) at [www.credoreference.com](http://www.credoreference.com) on 2 March 2008] in view of

Ambrose et al. as applied to claims 1, 3-4, 11, and 22-23 above, and further in view of Milosavijevic et al. [US PGPUB 2004/0098204; issued 20 May 2004; filed 3 June 2003].

Claim 28 is further limiting wherein the apparatus has multiple array readers each having a corresponding first processor which communicates with the same common memory; wherein each first processor causes the corresponding reader to read multiple chemical arrays each having a plurality of features, to obtain array signal data, and saves the read array signal data in the common memory; and each first processor of each array reader saves a reading station identification or characteristic in the common memory in association with the saved signal data for each array at the corresponding array reader.

Cattell et al. and Ambrose et al. make obvious a method comprising the simultaneous reading and extraction of data of arrays with multiple processors, as discussed above.

However, Cattell et al. and Ambrose et al. do not describe multiple readers each having a corresponding processor sharing information with a common memory.

The application of Milosavijevic et al. describes a method for requesting genomics services from a service provider over the Internet and providing services to a client over the Internet. In other words, the method of Milosavijevic et al. teaches a network of processing genetic information from a plurality of clients and processors into a central service provider with a common memory. Each "client" is interpreted to be a reader of biological information and the "service provider" is interpreted to contain the common memory.

It would have been obvious to someone of ordinary skill in the art at the time of the instant invention to modify the array analysis methods of Cattell et al. as and Ambrose et al., in further view of the network of Milosavijevic et al. wherein the motivation would have been that Milosavijevic et al. incorporates an Internet network for further efficiency [see paragraph [0063] of Milosavijevic et al.].

Response to Arguments:

Applicant's arguments filed 2 June 2008 have been fully considered but they are not persuasive. Applicant relies on alleged deficiencies of the abstract of Cattell et al. to argue against this rejection. Since the reference of Cattell et al. is not deficient for the reasons discussed above, applicant's arguments are not persuasive and the rejection is maintained.

The following rejection is reiterated from the previous Office action:

35 U.S.C. 103 Rejection #7:

Claims 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cattell et al. as evidenced by the definition of "pipeline" [obtained online from Webster's Computer Dictionary (2003) at [www.credreference.com](http://www.credreference.com) on 2 March 2008] as applied to claims 1, 3-4, and 11 above in further view of Kallioniemi et al. [US PG PUB 2003/0215936 A1].

Claim 36 is further limiting comprising forwarding data representing the result of said reading and extracting. Claim 37 is further limiting with the additional limitation of communication to a remote location.

Claim 38 teaches a method comprising receiving data and is interpreted to mean any type of data that could be made by the method of claim 1.

Cattell et al. teaches a method comprising the simultaneous reading and extraction of data of arrays, as discussed above.

Cattell et al. fails to show the forwarding and reception of data and the use of remote computers.

Kallioniemi et al. teaches a method and apparatus for a high-throughput, large scale molecular profiling of tissue specimens through analysis of arrays of donor data.

Kallioniemi et al. uses the Internet in combination with communication channels to disseminate array information to remote locations. As is stated in paragraph [0083]:

A "communication channel" or "network" is a system, such as the Internet, which permits digital dissemination of digital information, such as digital images and test associated with the images.

It would have been obvious to someone of ordinary skill in the art at the time of the instant invention to modify the multiple array reading method of Cattell et al. by use of the remote analysis method of Kallioniemi et al. wherein the motivation would have been that the application of the use of the Internet to the array analysis methods of Cattell et al. would have allowed a more thorough access and reception of array information [see, for example, paragraph [0083] of Kallioniemi et al.].

Response to Arguments:

Applicant's arguments filed 2 June 2008 have been fully considered but they are not persuasive. Applicant relies on alleged deficiencies of the abstract of Cattell et al. to argue against this rejection. Since the reference of Cattell et al. is not deficient for the reasons discussed above, applicant's arguments are not persuasive and the rejection is maintained

***Double Patenting***

The following double patenting rejection is newly applied:

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 22-23, 25, and 27 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 29-32 of copending Application No. 11/598,951. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant application and '951 both recite an apparatus for array reading and extraction. The instant application only requires two chemical arrays whereas '951 is limited to have "multiple" arrays. As "two" arrays is a plurality or multiplicity of arrays, the claims of each application are interpreted to be drawn to a single invention. Additionally, claim 29 of reference uses a "common memory" instead of a "memory." As a "common memory" is a species of a "memory," the claims of the application '951 describe the instantly rejected claims.

Claims 22 and 24 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 33 and 35 of copending Application No. 11/598,951 in view of Wilkinson et al. [Slides from "Parallel Programming," Prentice Hall, 1999]. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant application and '951 both recite a method and apparatus for array reading and extraction, the instant application only requires two chemical arrays whereas '951 is limited to have "multiple" arrays. As "two" arrays is a plurality or multiplicity of arrays, the claims of each application are interpreted to be drawn to a single invention. Although the conflicting claims of the reference recite a "hub" instead of a memory, the reference of Wilkinson et al., which illustrates techniques and applications using networked workstations and parallel computers, depicts in Figure 1.3 how an interconnection network "hub" facilitates connection of multiple memories.

It would have been obvious to someone of ordinary skill in the art at the time of the instant invention to modify the computer hubs of application '951 by use of hubs as in Wilkinson et al. wherein the motivation would have been that hubs facilitate the connection of memories to a central server [see Figure 1.3 of Wilkinson et al.]

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Conclusion***

No claim is allowed.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the central PTO Fax Center. The faxing of such pages must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993)(See 37 CFR § 1.6(d)). The Central PTO Fax Center Number is (571) 273-8300.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Russell Negin, Ph.D., whose telephone number is (571) 272-1083. The examiner can normally be reached on Monday-Friday from 7am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, Marjorie Moran, Supervisory Patent Examiner, can be reached at (571) 272-0720.

Information regarding the status of the application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information on the PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/RSN/  
12 September 2008  
Russell S. Negin, Ph.D.

/Marjorie Moran/  
Supervisory Patent Examiner, Art Unit 1631